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Editorial Comment

EDUCATION IN TUBERCULOSIS

With the advent of December, when we think of tuberculosis we think of the educational program of the National Tuberculosis Association made possible by the annual seal sale. This educational program for thirty-two years has carried to the laymen the story of tuberculosis, the contagion, and how to prevent it. Education of the public in tuberculosis has done a great deal towards reducing the death rate from tuberculosis in the United States from first to seventh place.

There is much for the medical profession to ponder over when we consider education in tuberculosis. When the National Tuberculosis Association and its component societies carry to the public an educational curriculum in tuberculosis, it is in fact an admission that the medical profession has been unable to adequately cope with the tuberculosis problem and that the people, themselves, must be trained and counseled in such known processes as may tend to reduce the incidence of this great infection. The education of the public has proved inadequate to meet the tuberculosis problem. More education is necessary if we are to reduce this major infection from its present stronghold.

It would seem that the education of the future should not only be the education of the layman but of the physicians themselves. And it is not necessary that physicians be educated in some new discovery but rather that there be assembled and correlated the present classical facts that we have actually in our possession today, but facts that we are not utilizing to the fullest degree possible for the professional management of this disease.

There are two groups of us that should be educated in tuberculosis. The first group is composed of bedside physicians, those general practitioners and internists who are called to the acute case. It is known to the profession that the tubercle bacillus may be responsible for the acute pulmonary illness, most frequently diagnosed as broncho - pneumonia. How many physicians are tuberculosis cons-

cious to the degree that when they are called to the bedside of an acute pulmonary illness that they have in mind the causative factor might be the tubercle bacillus? How many physicians have their patient x-rayed six weeks following the "broncho - pneumonia" or "influenza" because they realize that the acute illness might have been due to the tubercle bacillus? The case should be investigated weeks later to ascertain whether or not resolution has occurred. What a great contribution it would be towards the tuberculosis problem if the educational program carried to the bedside doctors of the United States, would result in tuberculosis consciousness for the attempted diagnosis of the acute pulmonary case which presents itself.

The other great group of physicians who need education are those physicians who treat pulmonary tuberculosis. These physicians know the value of hospitalization, the value of bedrest together with other hygienic measures, they are versed in the various methods of pulmonary compression, but they have insufficiently correlated their methods of treatment and regimented them, if you please, to that state where they are living under the slogan: "Open tuberculosis must be closed."

Again it is a case of carrying to a group of physicians facts already known to us, but when correlated, lead us to a state of consciousness that when we have an open case of pulmonary tuberculosis present, that our entire effort should be to close it.

Our imagination might carry us to great heights if we thought of the results that could be obtained if the bedside physician made a truly early diagnosis of tuberculosis in its truly first clinical stage. And then our imagination would carry us into the realm of the millennium when we think of the results that would be obtained towards the control of this infection if all of our men treating tuberculosis operated under the slogan that "Open Tuberculosis Must Be Closed." And to accomplish these two great results we need no new information. We have adequate proven facts to accomplish both of these ends, if we will but disseminate them properly to those two great groups of our profession.

So as the National Tuberculosis Association launches its drive for education of the public in tuberculosis for 1939, it should be the responsibility of every physician not only to aid in the Christmas Seal Campaign, but to take an active lead in the formulation of policies which have to do with this important problem. If physicians are to direct medical programs, they must accept the responsibilities which accompany a position of authority. Unless they are willing to do this, it is expected that lay groups will assume the lead. May 1939 bring more education in tuberculosis, not only to the public but to the physicians themselves. O. E. E.

ASPIRATION Today, anyone engaged in pneumothorax therapy, has frequent occasion to aspirate fluid from the pleural cavity. In large clinics or hospitals, and in the extensive private practice of many chest specialists, it becomes almost a part of the daily routine. Every pneumothoracist has occasionally, if not frequently, encountered cases where the chest presented something of a physical and optical illusion. After viewing the chest externally, augmented by the physical examination, the needle is inserted in what appears to be the usual orthodox basal position. A "dry" tap results and is very disconcerting to both the patient and operator. Fluid is known to be present, for just a few minutes ago it was easily seen under the fluoroscope, perhaps one-third to one-half a chest being filled. If the patient is now placed again behind the fluoroscopic screen and a marker placed over the point of puncture; it will be seen that the needle was introduced from one to several inches away from the fluid, usually below it. Not uncommonly, a collection of fluid in the lower half of the pleural cavity will be revealed, following orientation by the fluoroscope, to have its base, when projected to the external chest wall, in the region of the axilla.

For these reasons the writer has developed in his office practice a simple method of fluoroscopic orientation which has aided him greatly in overcoming some of these difficulties in aspiration. A small section of metal chain, such as may be cut from a metal leash purchased at the ten cent store, is used. The ends of this piece of chain are provided with

tabs of adhesive tape. Under fluoroscopic vision, the chain is placed around the chest at the lower level of the fluid, and held in place by the adhesive tabs. If desired, one may be placed about the upper level as well. The patient is then removed to the room wherein the aspiration is to be performed—the chain removed, and appropriate markings with tincture of iodine made. If no chain is to be conveniently had; then a silver coin held tangentially to the chest wall and then turned flush against the chest and taped on, makes a good substitute. By this very simple procedure, the fluid levels in the chest are very accurately determined and projected externally to the skin surface. In selecting the site for the thoracentesis puncture, an area on this level just determined, should be one that is flat to percussion. The fluid does not always lie completely free in the pleural cavity, even though appearing so on fluoroscopic examination. The lung may be adherent at different sectors of the hemi-thorax. By this simple technique, the writer has about eliminated dry taps in his own practice, and with them, the embarrassment of not getting what he went after when he knew (and so did the patient) that it was there. This method also enables the operator to make the puncture at the lowest safe level, and thus to remove the greatest possible amount of fluid. By manipulating the patient's position on the table, at times employing a marked backward tilting one, this latter objective is considerably abetted. C. H. H.

ORGANIZED MEDICINE

Advantages of Organized Medicine to the Public

Through activities, possible only by efficient organization of the medical profession, there has been an elevation of medical education, practice, and hospitals in the United States to the high point which they have now reached — an example to the World.

Through these activities, the Public receives its only protection from cults and quacks, from malicious, self-seeking legislation.

Advantages of Organized Medicine to the Doctor

The doctor is benefited by Organized Medicine from the day he enters high school, in that the standards of preliminary education are set to guide him in the selection of study courses. This beacon light shines throughout his medical course and internship. In each step he is prevented from wasting his time in "unaccepted" schools and hospitals. After graduation, Medical Organization affords him a maximum possible amount of protection from unfair competition by improperly trained cultists. It affords him legal protection of several sorts. Scientific meetings, which continue his training, are all the result of organization.

Public Health Duty of Organized Medicine

Organized Medicine has a record replete with glorious achievement, but by no means a perfect one. Human frailties creep in. We should accept as an axiom — Nothing is good for Organized Medicine that does not best serve the interest of the Public.

Let me give you an example of error on our part. We had in our state a county in which a certain piece of public health work needed to be done — a tuberculosis survey. The survey would have sent a large number of patients, through tuberculosis cases being found in need of treatment, to family doctors, x-ray, and chest specialists. The County Medical Society blocked the work because they were not willing to have an "outside" organization come in, although they themselves were not equipped to compete for the work. So they and their public lost: they, money, and the public, health. Had they been guided by what was best for the public, the mistaken position would never have been taken. If their community had retaliated and told the doctors that they could only purchase home products, the doctors would have been outraged.

We have a great opportunity for service. Let us make the most of it. F. W. B.

Case Finding under the Pennsylvania Plan and the Attitude of the National Tuberculosis Association toward the Plan*

ESMOND R. LONG, M.D.
Philadelphia, Pennsylvania

THE PRINCIPLES of tuberculosis case finding are the same under all plans and are based on the discovery of the maximum number of cases possible with the funds available. In general, two methods are applied: the examination of tuberculosis contacts and mass surveys for the discovery of the disease.

It may be argued that undue emphasis is being placed upon tuberculosis in the prospective public health program of this country, particularly in view of its rapid decline as a cause of death. It is indeed true that an enormous drop has taken place in the total mortality from this disease. Enthusiasts point with pride to its present low level, sixth among the listed causes of death. But the fact is commonly overlooked that the causes of mortality listed above it, viz., heart disease, cancer, nephritis, cerebral hemorrhage and thrombosis and finally pneumonia, are not specific disease entities, as is pulmonary tuberculosis, but rather agglomerations of ailments lumped together for statistical convenience. If heart disease, the various forms of cancer, the different diseases of the kidney called "nephritis" and the different types of pneumonia were correctly reported and separated according to the best modern classification, and the fatal cerebral vascular events assigned to their own specific causes, pulmonary tuberculosis would probably still hold first place as a specific disease causing death.

The essence of the Pennsylvania Plan, as clearly expressed by Dr. Frank Burge in a recent number of the Weekly Roster of the Philadelphia County Medical Society (June 18, 1938), is a coordination of antituberculosis forces through the medium of a series of committees in organized medicine. Referring to the antituberculosis campaign up to date and, particularly, to the part played by voluntary agencies Dr. Burge wrote: "It (the National Tuberculosis Association) has been doing a great job, in spite of unorganized opposition or indifference on the part of organized medicine." In brief and in essence the Pennsylvania Plan is to replace the indifference and even occasional obstruction to which Dr. Burge has frankly and courageously referred with active effort by organized medicine in the antituberculosis campaign.

The opportunity is exceptional, as organized medicine is in a position to attack tuberculosis in certain fields where the voluntary agencies are helpless. Since the larger part of advanced tuberculosis is still discovered by the private physician, the latter is first on the ground for the examination of contacts. Organized medicine, under the Pennsylvania Plan, particularly in cooperation with the state, can do much for the fight against tuberculosis by stimulating a keen sense of responsibility on the part of physicians. Education in responsibility as well as technic is presumably included in the educational program of the plan. There is much that is worthy of emulation in the well known plans of other states and cities, where the private physician is virtually a health officer in his dual relation of responsibility to the tuberculous patient's family and to the state.

It is, however, in the field of mass surveys that the opportunities under the Pennsylvania Plan are maximum, for it is in this very field that the indifference and opposition previously operative have largely prevented effective work. In the past, with few notable exceptions, surveys have been confined to school groups, groups in which it is now well recognized that the incidence of tuberculosis is low. The majority of tuberculosis occurs in adult life. It is most easily detected, in those symptomless early stages

* Abstract of paper presented at a Tuberculosis Dinner held Oct. 6, 1938 in connection with the Annual meeting of the Pennsylvania State Medical Society.

when the prospect for rapid arrest is good, through mass surveys in industry. Admittedly, medical practice of this sort is in a state of controversy. The fact remains that the experience of city and state health departments has shown abundantly that large numbers of early cases can quickly and inexpensively be found through surveys of adult industrial groups. If organized medicine will depart somewhat from old tradition and assume leadership, rather than set obstacles in the way, in this field, it can be responsible for a vastly improved national program of tuberculous case-finding. The problem is difficult, because in addition to its medical aspects it involves the economic interests of employers and employees. But it seems clear that unless the program is frankly taken over by the state, only organized medicine can bring about the desired and achievable success.

As to the second phase of the subject, I am in no position to speak officially for the National Tuberculosis Association. Yet I am acquainted with its aims, and have no hesitancy in saying that it can only look with approval on any plan, such as the Pennsylvania Plan, in which the coordination of antituberculosis forces is a primary object. One only needs to recall the emphasis laid by the first president of the National Tuberculosis Association on coordination in his address at the first annual meeting, an emphasis which, as far as I know, has never changed. Trudeau spoke then in his moving way of "an organization so perfect and a cooperation so broad that through education it will bind together for the attainment of a common aim the laity, the profession, the state and the nation." It seems to me that in this simple statement, which characterizes the attitude of the National Association today, there is abundant endorsement of the principle of cooperation that is intrinsic in the Pennsylvania Plan.

Tuberculosis in General Practice*

JOHN H. PECK, M.D., F.A.C.P.**
Oakdale, Iowa

DR. JOHN H. PECK: Mr. Chairman, Ladies and Gentlemen:

We should bear in mind, Mr. Chairman, that as the introducer of this subject, I have the privilege of asking questions, which the discussors must answer. I consider it a rare privilege to discuss mutual problems in tuberculosis with an understanding and sympathetic audience, because so many times in discussing certain phases of tuberculosis we feel that we must evade certain evident facts in order to please every one in our audience group.

The title, *Tuberculosis in General Practice,* might have been somewhat more descriptive. After all, what is the difference between tuberculosis in general practice and in private practice; in hospital practice and in sanatorium practice; in consultant practice and in public health work. Obviously, the same general principles must prevail wherever and however the subject is considered.

We infer that the general practitioner has the opportunity to see the suspected tuberculous patient first. Therefore, it is clearly his responsibility to recognize the disease as early as possible; that is, to make an accurate diagnosis from such evidence as is obtainable or else to refer the patient where better diagnostic facilities are available. To my mind, a consideration of the available data according to the simple case analysis method as advocated by the late Lawrason Brown will reveal a remarkable uniformity of correct diagnoses.

But let us not be guilty of assuming that management of the tuberculous patient is a simple proposition. It deserves the very highest medical skill. The too frequent advice to rest, drink milk, and trust in the Lord is unworthy of the general practitioner. It is a

* Read before the Fourth Annual Meeting of the American College of Chest Physicians, San Francisco, California, June 12, 1938.

** Medical Director, Iowa State Tuberculosis Sanatorium.

striking inconsistency that we have advocated and built more than 80,000 beds exclusively for tuberculous patients and yet have failed to provide a sufficient number of adequately trained physicians, especially from the standpoint of ability, to select those patients who are most likely to profit by sanatorium care and training.

I wonder if physicians realize, generally, that the three phases of the tuberculosis problem from the medical standpoint, are almost equally important. These phases are diagnosis, treatment and after-care. Some ten or eleven years ago, the National Tuberculosis Association introduced a form of propaganda, known as the early diagnosis campaign. This was directed chiefly to the laity in an effort to stimulate and encourage a more general tuberculosis consciousness. Much interest was aroused, but certain inherent difficulties became evident. That first slogan, after mentioning several suggestive symptoms, enunciated the edict: "Let your doctor decide." Excellent advice—this appealed to the medical profession, including our left handed brethern, and they were tremendously pleased to think that a great voluntary health agency was actively engaged in drumming up business for the doctor. In other words, the National Tuberculosis Association publically declared that any doctor, no matter what variety, was perfectly capable of arriving at a correct and reliable opinion regarding the presence or absence of pulmonary tuberculosis in any given case. Whereas, the majority had neither the scientific knowledge nor the professional skill to recognize early pulmonary tuberculosis when it was early. Unfortunately, many practitioners did not admit the truth of this, but experience testifies to the fact.

Many similar slogans have been launched since. One of the most effective is the "Early Discovery, Early Recovery" slogan. This suggests to the prospective tuberculous patient that every doctor, and particularly *his* doctor is thoroughly qualified to be an honest discoverer and capable of pointing out the straight and narrow road to early recovery. This was too much to ask of the conscientious doctor. He did the best he could, according to his knowledge, but his lack of training in the essentials necessary for the diagnosis of tuberculosis naturally led to many errors of commission as well as omission. The latter is only slightly more dangerous than the former.

On numerous occasions, honest physicians have confessed to me that they know practically nothing about pulmonary tuberculosis; do not know how to obtain a proper history; cannot elicit and interpret abnormal physical sounds in the chest; do not know how to interpret the chest film. A positive diagnosis by such practitioners is made solely upon a report of "tubercle bacilli found," usually from the state laboratory. This really is a pitiful situation, but it redounds to the credit of the physician that he is willing to admit the alleged fact. Now what is the solution?

First, we must agree that medical schools should revise their curricula so that proper and sufficient time be devoted to modern teaching of this most important subject—pulmonary tuberculosis. This means that a physician thoroughly grounded in the fundamentals of the recent knowledge of tuberculosis, and with a definite flair for teaching, be selected to direct such a division; and then provided with abundant clinic material, adequate equipment and sufficient time. Young graduates will then be turned out qualified to do their duty to the public along this line.

We have a fortunate situation in Iowa, where the state sanatorium of 420 beds is located only four miles from the State University College of Medicine. The staff members at the sanatorium have medical faculty appointments and are actively engaged in practical clinical teaching. During their sophomore year, the students are instructed in the essentials of physical diagnosis of the chest by class work and group demonstrations. This fundamental instruction is very necessary, unless, as some men apparently advise, physical examination of the chest be abandoned altogether. Personally, I cannot agree that other methods, particularly the x-ray, shall entirely supplant the pioneer work of auscultation dating from Laennec more than 100 years ago. During the junior year, didactic lectures on tuberculosis should be conducted by a physician from the sanatorium, instead of by one whose chief interest lies in hearts, kidneys, goitres, or something else. An adequate number of hours

should be set aside for this instruction.

It is most important that during the senior year the student's knowledge be correlated and systematized so that it may be useful for his future practice. This is best accomplished by a definite period of residence in the sanatorium, with a carefully planned schedule including lectures, demonstrations, laboratory procedures, modern methods of treatment, and many other phases of tuberculosis.

At the Iowa State Sanatorium, we provide housing for groups of five or six students for two consecutive weeks, where they devote about 90 hours to concentrated consideration of this subject. Each student examines at least 25 patients under supervision, and his work is thoroughly checked. The students appreciate this course, judging from the number of favorable comments.

Post-graduate instruction in tuberculosis presents a much more difficult problem. Evaluation of alleged results leads to conflicting opinions. For 20 years, the Iowa Tuberculosis Association conducted chest clinics over the state upon invitation of county medical societies. Having conducted most of them, I believe these clinics served a useful purpose, not that so many primary diagnoses were made, but that every patient furnished clinical material for discussion of various diagnostic points. A luncheon or dinner meeting gave an opportunity for a formal paper on some phase of pulmonary tuberculosis, usually with a lantern slide or movie demonstration. It is interesting to note that many county societies requested annual clinics and made them an outstanding feature of this part of the program. In fact, there are county societies that apparently never had a meeting except when they had a tuberculosis clinic.

Later on, mass tuberculin testing of school children became a popular variation, serving to emphasize the specificity of the reaction, and the importance of obtaining chest x-ray films of reactors. There is distinct value in this procedure, but it is essential that the significance of a positive reaction be thoroughly understood. Lack of this understanding sometimes creates unnecessary concern. A majority of the doctors required education to the end that proper care was instituted. These surveys, however, we found rather expensive and very time consuming.

The Speaker's Bureau of the Iowa State Medical Society has put on some tuberculosis programs. These are not always popular, as the average medical audience has become somewhat blase about tuberculosis, and doesn't care to be told much about it. Some of them, like an old doctor in a certain Iowa county came back at us like this: "What do we care about tuberculosis? There aint been a case in my county in seventeen years." Obviously, he was mistaken, but his belief was significant.

After the mass testing programs, the next step naturally indicated was concentration on the search for pulmonary tuberculosis among known contacts. This method discovers a much higher percentage of cases, particularly by use of x-ray films, and, when associated with the official demand for examination of all members of tuberculous families, accomplishes much good. Doubtless, this procedure will stand the test of time and become a distinct part of every official program against tuberculosis.

In the past year, there have been correlated cooperative surveys to discover cases of tuberculosis. The Iowa Tuberculosis Association and the State Department of Health put their money together and got a little help from Washington in putting on this kind of a program—the examination of contacts, which should be very successful.

Now, having presumably made the general practitioner proficient in the diagnosis of pulmonary tuberculosis, it appers essential that he be instructed in the modern methods of treatment. He has abandoned, in most instances, the old fashioned attempts at home treatment, but he still needs to display the courage to insist upon prompt and aggresive sanatorium care.

The medical profession in general lacks knowledge of the tremendous strides made in chest surgery during the past decade, enforcing much desired mechanical rest. But another thing, the doctor in general doesn't realize is the *time* element in getting well. This is very important. Several weeks ago, my medical social worker told me that she believed if I could see Mrs. Blank I could persuade her to stay (she had been in the

institution a very short time). I asked if everybody else had exhausted themselves. She said they had, and it was up to me—the last call. I told her I never yet had succeeded where everybody else had failed, but I went to see the lady, and asked her what was the rush about getting home. She answered:

"It's almost the first of June and my doctor said that if I went to Oakdale I could come home by the first of June, so I'm going back."

"All right," I answered, "Goodbye." I learned long ago that you can't argue with patients and have any degree of success.

Now the third phase, the unfinished task in tuberculosis, means a greater appreciation of the value of proper after care. Too many physicians think the discharged patient is a finished product. They do not realize that the patient requires medical supervision for many years. Even the advice always given a departing patient and written to his doctor that supervision and routine examinations are absolutely necessary is frequently disregarded. It is a most curious anomaly that a patient who has spent several years in a sanatorium, and hence should have reliable information regarding tuberculosis neglects the most important phase of all, that is, to insist upon competent medical supervision after discharge. I am not sure how this can be solved. We have devoted much time to diagnosis, considerable time to treatment, and our next job is to concentrate on educating first ourselves and then our patients concerning the admitted value of after care, not alone for the preservation of life, but because of the huge financial outlay in getting the patient back on his feet.

It is perfectly obvious, then, in conclusion, that until the physician in general practice has more adequate training in tuberculosis diagnosis, a more modern conception of treatment during and after a sanatorium residence, we shall have late diagnoses, deferred treatment, and unnecessarily bad results for the tuberculous patient.

DISCUSSION

DR. J. M. ODELL
The Dalles, Oregon*

I wish to compliment Dr. Peck on his presentation of the problems which we have to confront and remedy if we are to make the desired progress in the diagnosis and treatment of pulmonary tuberculosis.

Until a few years ago, general practitioners in Eastern Oregon, as a rule, showed an apathetic attitude towards the diagnosis of tuberculosis and especially the treatment. Many of these general men seldom had a chance to see an x-ray of a tuberculous lung, or to listen to the physical findings associated with tuberculosis; and, considering these facts, it is not to be wondered at that many cases were not diagnosed, even had the patient had a thorough chest examination, which was not often the case, as these general practitioners had little time to give to each patient. Had they been familiar with the signs and symptoms of tuberculosis, they would perhaps have given more time to the chest examination.

A great majority of cases which were received from Eastern Oregon at that time were far advanced and nothing much could be done for them after admittance. Due to lack of funds, many counties were unable to carry on a county health program. A few counties who did carry on this program became interested in tuberculosis to such an extent that clinics were requested for the tuberculin testing of all school children, and from these clinics increased interest began to be evident among the laity and physicians.

Needless to mention, in the last three years there has been a decided decrease in the number of far advanced cases seeking admittance. Many cases are now sent in with a tentative diagnosis of pulmonary tuberculosis which often, after a period of observation, turns out to be non-tuberculous. However, it is far better to have many cases sent in for observation than to let one case be neglected.

It is interesting to note that in one county two high school children were diagnosed as actively tuberculous in an early stage and their general health at the time of the diagnosis was excellent. In another county, where the teachers took the tuberculin test, two were discovered to have active tuberculosis. One had been teaching school for eight months after having had a hemorrhage. Another teacher had been teaching for a year after

* Medical Director, Eastern Oregon State Sanatorium.

having had a hemorrhage and, at the time her disease was discovered, had a laryngeal, pulmonary and intestinal tuberculosis. These are just a few instances of active cases which have been discovered by tuberculin testing in high schools.

In Eastern Oregon the local physicians are urged to take an interest in the tuberculin clinics and as a result many of them are now carrying on clinics alone in their own counties.

The positive reactors are either sent to the state hospital for a fluoroscopic examination, or, if too far away, an x-ray is taken and sent to a competent tuberculosis specialist for interpretation. The general practitioners in this part of the state at this time, once tuberculosis is diagnosed, immediately advise the patient to seek admittance to one of the two state sanatoriums. They have come to realize that the treatment of tuberculosis outside of a sanatorium is inadequate and in many cases the physicians wish to be relieved of the responsibility of treating a long, drawn out, chronic case such as pulmonary tuberculosis.

I believe that tuberculin testing in Eastern Oregon has done more to make the general practitioner and general public tuberculosis minded than any one other factor. True, there is some objection to tuberculin testing as done here, as in many cases those who have positive tuberculins have not been properly informed as to the significance of the test. However, one has to choose between two evils, that of unduly alarming a positive reactor, or discontinuing the tuberculin clinics. Even though some of the positive reactors are unduly alarmed, when they have been assured that a positive reaction does not necessarily mean that they have tuberculosis, and after an examination when they are informed that they do not have this disease, these people do more to spread the gospel than any number of nurses.

DR. RALPH C. MATSON
Portland, Oregon*

Mr. Chairman, Ladies and Gentlemen: I agree that the so-called "Early Diagnosis Campaign" of the National Tuberculosis Association has not resulted in bringing patients with less advanced disease to the specialist. As a matter of fact, the slogans "Let Your Doctor Decide" and "Early Discovery—Early Recovery" of the National Tuberculosis Association, as Dr. Peck says, were evidence of a very pleasing and flattering attitude on the part of the National Tuberculosis Association toward the medical profession, and particularly, as he says, our left-handed brethern. They were naturally tremendously pleased to feel that a great health agency regarded them as not only qualified to diagnose tuberculosis, but to treat it. Whereas, as Dr. Peck states, the vast majority of the members of our profession have neither the training nor the knowledge to diagnose tuberculosis or properly treat it.

The medical profession was truly honest enough. This program was, as it were, virtually shoved down their throats and they more or less had to accept it. My experience has been that on innumerable occasions honest physicians have had to fit into the picture intimated by the slogans just mentioned. Their patients had been through clinics and were referred back to them with the report that the individual had tuberculosis. Thus, many physicians found themselves wholly at a loss to know what to do because of their lack of knowledge of tuberculosis.

The situation, especially the diagnosis of tuberculosis, is really pathetic, but, fortunately, not hopeless, because the profession realizes its lack of training and is manifesting increased interest in the diagnosis and treatment of tuberculosis. There is no doubt that the methods of teaching physical diagnosis and tuberculosis in medical schools is responsible for this lack of knowledge on the part of the general profession. This situation was brought very acutely to my attention by my war experience. As Chief Medical Examiner at Camp Lewis, I had 120,000 men pass through my hands into service, and 77,000 of that number passed through my hands, after the Armistice, for discharge. I had a group of some 40 officers on my examining board. Their ignorance regarding the diagnosis of tuberculosis was appalling—so much so that it was necessary to keep a constant check with x-rays and unofficial examination forms in order to make sure that tuberculosis was diagnosed when it existed and not diagnosed

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when it did not exist. Later, as Chief of the Medical Staff at General Hospital No. 21 (later Fitzsimons General Hospital) I was struck by the enormous number of patients in the hospital who had been diagnosed as tuberculous, but in whom, after careful study of the case, there was no justifiable evidence of the disease.

After sending controls through the clinic and comparing the various physical examinations made by different groups of officers, it was very apparent that many of the doctors did not recognize or know how to interpret what they percussed or heard. We sent them over to the department of music to have their ears tested on tone interpretation. There were very few who had a musical sense sufficient to determine the difference between a major and minor on the piano scale, and yet they were presuming to render opinions on pitch interpretation dealing with vibrations thousands of times faster than that of the piano.

Doctors see to it that their vision is corrected, if it is defective, but little thought has been given to medical students' and doctors' ears. They are taught about pitch and tone interpretation in classes, without the faintest idea what it is all about. I think the time will come when those students who have had no musical training will be compelled to know the fundamentals of it at least. The value of this was brought very strikingly home to me on my second trip to Europe many years ago, where a symposium on tuberculosis was given at the Academy of Medicine in Dusseldorf, Germany. It was a splendid symposium which lasted some six weeks and the teachers were brought from all over Europe. One of the things which the class had to do was to go to the Department of Music and go through a course of exercises on tone interpretation. The value of this training is something I have never forgotten.

Speaking of clinics, one must admit that the average diagnostic clinic is not of very much service. I have repeatedly held clinics examining from 60 to 90 patients in a day, where the x-ray films and history of the cases clearly indicated that there was no occasion for their being dragged into a clinic. I recall one clinic at Astoria, Oregon a number of years ago, where some 75 husky fishermen, with calloused hands, were brought to me for examination. An ambitious public health nurse had invited them to the clinic. Every Norwegian, Swede or Finn who had a pain in his chest with cough or expectoration was there. In the entire group there was only one case of tuberculosis. He was very far advanced and had been earlier diagnosed by a local doctor.

There can be no question about the value of tuberculin testing in families and among those exposed to tuberculosis, and x-raying the positive reactors and keeping them under observation. I feel very confident that the American College of Chest Physicians will be able to work out some sort of a program which will be of value to the general practitioner.

DR. CHESLEY BUSH
Livermore, California*

Mr. Chairman, Ladies and Gentlemen: We all agree with Dr. Peck, Dr. Odell, Dr. Matson and the others, that the general practitioner enters into the problem of almost every case of tuberculosis somewhere, and we all agree that the general practitioner in many instances fails to do his part of the job. I want to stand up for the general practitioner and say that this is not always his fault. We have listened this afternoon to an account of tuberculosis work that is so new that some of it is astonishing even to us, and so we cannot expect the general practitioner to keep up with the progress of tuberculosis work, if we have difficulty in doing so ourselves. The National Tuberculosis Association, in its educational programs in the control of tuberculosis, has to a large extent failed to realize this situation.

It has assumed that the general practitioner of medicine is conversant with all the problems of tuberculosis. It seems to me that this association and the National Tuberculosis Association should devise programs of tuberculosis control beginning with the medical profession and focus more attention on helping the general practitioner keep up with the modern aspects of tuberculosis.

One thing that we apparently have to combat is indifference. Several days ago I had the opportunity of talking with one of the

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men in the central office of the A. M. A. He told me that in states where the medical associations had postgraduate programs the lectures on tuberculosis were practically never requested. We have found this true in California. Local medical societies seldom request tuberculosis programs, unless stimulated to do so by the local tuberculosis organizations.

Tuberculin case finding programs are a potent factor in stimulating interest in local medical associations. Those of us who have graduated from medical schools more than fifteen years are in the position of having been taught that the tuberculin was an unnecessary test, because we all had more or less tuberculosis. Five years ago in a city within less than twenty miles of San Francisco, with a population of 15,000 people and something more than 18 doctors, there was no physician who was able, or had even thought of giving tuberculin tests under any circumstances. Our tuberculosis associations went into this community with case finding programs and placed in the hands of these physicians the problems of tuberculin testing their communities. The result has been that tuberculin testing is now quite a common procedure used by the majority of the doctors in their communities and in their own private work. The California Tuberculosis Association has been able to combat this indifference and lack of knowledge and has used as its principal policy the case finding program among school children in rural communities, for the purpose of achieving the cooperation and thereby the better education of the local medical group concerned.

Dr. Peck mentioned better education in medical schools regarding tuberculosis. We have seen internes from medical schools all over the United States, and it is true the essentials and important details of tuberculosis are usually missed in the vast amount of general knowledge that has been brought to them. How much tuberculosis should be taught in medical schools is a problem that should be worked out by a group of medical educators. Possibly, tuberculosis will have to be learned during interne years to a great extent. Another problem of the general practitioner is the difficulty of having all members of a family, contact to a known case of tuberculosis, come into his office for examination. Naturally, if the doctor requests the patient to send all other members of his family in for examination, he is suspected of making work for himself, and is sometimes placed in an embarrassing position. Assistance should be given him by the public health department and tuberculosis organizations, so that he may have at his elbow the services of a public health nurse or a social worker to assist him in this regard. There should be some way in every community of rendering this assistance.

Dr. Becker told us at noon that the City of San Francisco furnishes laboratory work and an x-ray for any physician who feels that his patient is unable to pay for them, and in Alameda County that this thing is done by the tuberculosis association.

In conclusion, I should like to add that when we blame the general practitioner we are accusing ourselves. The majority of his difficulties are due to our lack of help. Tuberculosis organizations must realize that the general practitioner is in the front line trenches of all tuberculosis control programs, and that we must give him all modern equipment and support and keep him informed of every new development.

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The Value of Clinical Research in Tuberculosis*

ANDREW L. BANYAI, M.D.**
Wauwatosa, Wisconsin

THERE is no doubt in my mind that all tuberculosis specialists engaged in sanatorium practice have a sincere desire to find and apply better means and ways in the treatment of tuberculosis. Unfortunately, the time of most of us is so fully taken up with the daily routine that little or no opportunity remains to record unusual observations and new ideas that are of genuine research value and would represent valuable contributions to the advancement of medical science.

One could speak at great length on the academic aspects, the psychological significance, or the didactic value of clinical research. I feel, however, that instead of taking up the theoretical aspects of this problem, I should present to you some of its practical aspects. For this reason, I wish to mention a few instances from my own experience that may have something to do with clinical research.

A possibility of finding new pathways for research is the transference of incidential clinical events into the field of treatment. It is well known that the observations on the beneficial effects of massive pleurisy with effusion upon pulmonary tuberculosis, and that of spontaneous pneumothorax upon pulmonary hemorrhage led to the introduction of artificial pneumothorax. The realization of the idea that artificial pneumoperitoneum is of value in the treatment of pulmonary tuberculosis was forced upon me by a technical error, when in one of our patients air was injected into the peritoneal cavity instead of the intrapleural space. Since the time of this accident, 1931, this treatment has been in use at Muirdale. I had the opportunity to demonstrate by roentgenologic measurements that the injection of moderate amounts of air (500 - 1500 cc.), at regular intervals causes a sustained elevation of the diaphragm. It is also demonstrable that it is followed by a substantial decrease in the apico-basal diameter, and the volume of the lung.

These changes improve the elimination of mucopurulent, inflammatory products from the respiratory tract, induce a lymph stasis and a relative passive hyperemia in the relaxed lung tissue, and aid the evacuation and obliteration of cavities. The train of events consequent to this treatment is very similar to that which follows artificial pneumothorax, or the surgical paralysis of the phrenic nerve. My own experience with this method, as well as the reports of others, convinced me that artificial pneumoperitoneum should be used in selected cases of pulmonary tuberculosis, particularly: 1. when artificial pneumothorax is indicated, but cannot be established; 2. when the patient's age or general condition precludes bilateral artificial pneumothorax and thoracoplasty; 3. when the surgical paralysis of the phrenic nerve has not produced satisfactory improvement.

I have found that in unilateral pulmonary tuberculosis one can produce better results by the combination of phrenic nerve block and pneumoperitoneum than by either of these procedures alone.

It is not expected of the sanatorium physician to conduct animal experiments, although I realize that such work is being done in several tuberculosis institutions. But it is expected of him that he make use of correctly interpreted observations of others that were gained by laboratory or animal experiments. It is probably recalled that, shortly after insulin was discovered, rabbits that were used for essaying its strength gained in weight considerably. Marriotte from Washington University was the first who used it for the treatment of malnutrition in 1924. An extensive investigation followed concerning its applicability in tuberculosis. My asso-

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* Presented at the Annual Meeting of the Southern Sanatorium Conference at Louisville, Kentucky, September 19, 1938.

**From the Muirdale Sanatorium, Wauwatosa, Wisconsin, and from the Department of Medicine, Marquette University School of Medicine, Milwaukee, Wisconsin.

ciates and myself have given insulin to non-diabetic tuberculous patients during the past five years. Our experience taught us that it is safer to begin the treatment with five units three times a day, half an hour before meals, and increase it to three times ten or more daily, if necessary.

Only moderately and far-advanced pulmonary cases were treated, in whom standard measures, and medicinal treatment, such as the administration of dilute hydrochloric acid and stomachics, failed to correct the lack of appetite, to increase the food intake and to induce gain in weight. We had only one patient who developed an insulin shock while taking ten units of insulin three times daily. This patient had fever and a high pulse rate. Her food intake was not satisfactory. The reaction reached its peak in three and a half hours following the injection during the afternoon "rest hours". It was promptly checked by intravenous dextrose and by giving several glassfuls of orange juice with sugar.

Allergic skin reactions were seen in a few cases. These manifested themselves either in generalized uriticaria or in the appearance of a swelling the size of a walnut, with slight tenderness, itching, and redness at the site of each injection. In some patients, these reactions were prevented by substituting beef insulin for pork insulin; in others the treatment had to be discontinued. Symptoms of gastro-intestinal allergy due to insulin, first reported by Williams, were rarely seen in our group. The analysis of the results in more than 100 patients treated by us has shown, as also had been reported by others, that improvement in the appetite, food intake, and gain in weight could be induced in the majority. It is not proposed to use insulin as a curative agent. But it is reasonable to assume that an improved nutritional condition attained by its use, may, indirectly, favorably influence the resistance, defense, and repair capacity of the body.

The oldest approach to clinical research is the systematic application of empirical observations. One of the best examples of this is the development of the balanced, vitamin rich diet. Recent investigations revealed the fact that milk is of value not only because of its easy digestibility and high calcium content, but also because it contains substantial amounts of vitamin A. It is also known that fresh milk contains certain substances, known as inhibins, which have strong bactericidal properties. Finding of large quantities of vitamin A in green vegetables, carrots and egg yolks aided the more intelligent dietary use of these foods. It was discovered by Steenbock that the presence of vitamin A in plants and animal food products is characterized by yellow color. This is covered up by the overwhelming amount of chlorophyll in green vegetables. Vitamin A is not a part of chlorophyll, but closely associated with it. A radical departure from the usual sanatorium diet was advocated by Sauerbruch, Hermannsdorfer and Gerson in 1926. Their diet is known as the S. H. G. or salt free diet. It excludes table salt, canned goods of all kinds, smoked and spiced meats, sausage and ham, smoked and salted fish. Abundant amounts of fresh vegetables are encouraged, as is milk, especially raw milk, 1 to 1.5 quarts a day. Patients on this diet are given liberal doses of calcium, viosterol or cod-liver oil. The aim of the diet is to establish a shifting of the acid-base balance toward the acid side, the depletion of the water contents of body tissues and a shifting of the ion contents of the body by substitution of sodium by calcium. Conclusions of different observers concerning the application of this diet are far from being unanimous. It is generally conceded, however, that cases of lupus vulgaris respond to it the best. We have been using a modified form of the S. H. G. diet since 1929 in extrapulmonary tuberculosis as well as in pulmonary tuberculosis. A salt substitute, "titro," is added to the food, thus rendering it palatable. It is my impression that this diet is a valuable adjunct in the treatment of certain types of tuberculosis, particularly in lupus, renal, bone and joint tuberculosis.

No matter how desirable it is to turn our attention toward the ultimate cure of tuberculosis, clinical research is obliged to attend to urgent questions we meet in our every-day practice. None of these is more important than the management of cough. There are two outstanding contributions to the understanding of the physiological aspects and the treatment of cough: 1. the study of its mechanism by Coryllos, and 2. the epoch-making

discoveries of Henderson concerning the effect of carbon-dioxide upon the cardio-respiratory system. Henderson and his associates recommended carbon dioxide inhalation for the prevention and treatment of post-operative massive atelectasis and pneumonia. It was shown that the respiratory center can be stimulated by these inhalations.

I have employed carbon dioxide-oxygen inhalations for the management of the cough of tuberculous patients since 1930. It is my experience that the inhalation of a mixture of 10 per cent carbon dioxide and 90 per cent oxygen is an efficient means for the liquefaction of bronchial secretions and for their removal from the bronchial tract. By its systematic use cough can be effectively reduced, and the use of narcotic medication lessened or entirely eliminated.

It is true that the huge volume of medical literature that reaches the press is discouraging, rather than encouraging, for the busy practitioner. This is well illustrated by the increasing number of medical "Literary Digests." Still, isolation from new communications would mean, at least, stagnation, if not a sure retrogression or deterioration in medical thinking. It is at the discretion of the sanatorium physician to choose his reading material with a critical mind — but read he must — and use his reading as a katalyzer for the betterment of himself and the condition of his patients. The examples of how findings and innovations in other branches of medical science are applicable in tuberculosis are many and their enumeration is beyond the limited space of this presentation. Not without hesitation, I would like to mention an instance of transferring observations of others into sanatorium practice.

In 1934 a series of publications appeared by Loehr who reported on the beneficial effect of the topical application of cod-liver oil in pyogenic osteomyelitis. I followed his work carefully because some years ago I had an opportunity to see the work of Campbell and Kiefer who showed that the addition of small amounts of cod-liver oil to culture media on which tubercle bacilli were grown, inhibited the growth of these micro-organisms. A brief presentation of my first clinical case is as follows:

A 27-year-old white woman was admitted to the sanatorium with the diagnosis of lupus vulgaris that involved the entire face, and the entire extent of the skin of the left arm. A partial destruction of the nose and upper lip was noted. The disease was of six years' duration when the patient was first seen. Prior to admission she was under the care of competent dermatologists. The process responded favorably to salt-free diet, but some of the ulcers on the face and arms remained open and produced considerable discharge. Cod-liver-oil dressings were applied to these areas from October 4, 1934 until May 31, 1935, at which time all ulcers were epithelized. There is no doubt that the acceleration and completion of the healing was attributable to the effect of the topically applied cod-liver oil.

It is interesting to know that during the past two years Goetz at the University of Wisconsin was able to prove on a well-controlled, large experimental material that tuberculous ulcers of the skin heal rapidly by the topical application of cod-liver oil. Encouraged by my good fortune in the treatment of lupus vulgaris I attempted to treat other tuberculous manifestations by this method. For the treatment of ulcers of the pharynx and larynx a common atomizer is used and the oil is sprayed directly to the involved areas. Cod-liver oil is sterile in its natural state; it is not necessary to sterilize it before use. Pharyngeal and laryngeal ulcers showed rapid epithelization and healing. Also a favorable therapeutic response was seen in cases in which there was a localized tuberculous infiltration or granulation. Laryngeal tuberculosis with marked edema is rather resistant to this treatment. I have been using cod-liver oil topically in ulcerating phlycetenular conjunctivitis, tuberculous ulcers of the tongue, and scrofuloderma. The results are very satisfactory. Cod-liver oil can be used by local injection for the treatment of ischiorectal fistula, sinuses following nephrectomy or epididymectomy for tuberculosis, suppurating tuberculous lymphadenitis, tuberculosis of the urinary bladder, and tuberculous empyema. My impressions are favorable enough to invite further study of this remedy in the treatment of these conditions.

Conclusions

The answer to the question — is it justified to do clinical research work in the sanatorium — cannot be anything but an affirmative one.

There is a gold mine of opportunity in the tremendous patient material; and the imperative necessity for research is there also.

The necessity for research is accentuated by essaying the accomplishment of the sanatorium during the past decade. The institution I am connected with can be taken as an example. Out of the total of discharged adult patients the classification on discharge was in 1928: 25 per cent died, and 21 per cent unimproved, that is, failures in 46 per cent; in 1937: 26.9 per cent died, and 21.5 per cent unimproved, that is, failures in 48.4 per cent.

When interpreting these figures, one must keep in mind that the overwhelming majority of the patients reach the sanatorium in the moderately or far-advanced stage of the disease. This might explain, at least partly, why the treatment fails in so many instances.

But, let us not forget that the chief cause of the failures is that the cure for tuberculosis, in the sense that it is available in diphtheria, malaria, or syphilis, is still missing. Finding it is a magnificent challenge, as well as a moral obligation, to all those who are engaged in the care and treatment of the tuberculous.

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OBITUARY

WILLIAM PERCIVAL ROSS, M. D.
1893-1938

Dr. William Percival Ross died suddenly of a heart condition in his home at Ottertail County Sanatorium, Battle Lake, Minnesota, on June 25th, 1938.

Dr. Ross was born in Woodstock, Ontario, Canada, in 1893. He moved with his parents to Saskatchewan when a small boy and obtained his preliminary education in that province. His medical education was obtained in the Manitoba Medical College, Winnepeg, where he graduated in 1923. His internship was obtained in one of the hospitals of Winnepeg. He was in general practice at Brandon, Manitoba, several years, following which he served as assistant physician at Ninnette Sanatorium, Ninnette, Canada.

Dr. Ross came to Minnesota in December 1929 and became a citizen of the United States in the summer of 1937. He held the position of assistant physician at the Southwestern Minnesota Sanatorium from the time he came to Minnesota until November 1st, 1937, when he resigned to take over the duties of Superintendent and Medical Director of the Ottertail County Sanatorium, Battle Lake, Minnesota. This position he was holding with credit at the time of his death. He was always faithful to his duties and held high the ideals of his profession. The last ten years of his life was devoted to tuberculosis work, a phase of medicine in which he was intensively interested and to which he contributed much of value. He was unselfish in his interests, always thinking of others rather than himself. He had few interests other than his profession and his family; most of his spare time was spent in his home, for he was a devoted husband and father. He was a member of the American College of Chest Physicians, the Minnesota Sanatorium Association and the Minnesota State Medical Association.

He was married to Rita Brooks of Winnepeg on August 11th, 1926. She, together with two sons, William and James, survive him.

S. A. SLATER, M.D.,
Governor for Minnesota.

The Diagnosis and Clinical Significance of Childhood Type Tuberculosis

SAM H. SNIDER, M.D., F.A.C.P.
Kansas City, Missouri

CHILDHOOD type tuberculosis in the chest includes all tuberculous infections in the chest prior to the development of the secondary pulmonary invasion, or adult type tuberculosis.

When the infection first takes place in the lung tissues, probably the most common route of infection, a Ghon tubercle is formed. This at first is not a true tubercle, but partakes more of the nature of an inflammatory reaction. This infection is usually followed in about ten days to three weeks by the development of allergy or sensitization to the protein products of the tubercle bacillus. At the same time, the infection spreads along the lymphatic channels from the Ghon tubercle toward the hilum lymph nodes. These become infected and enlarged and true tubercle formation takes place in them. Later the infection may spread peripherally from the hilum lymph nodes to the lymphatics in other parts of the chest and especially to the lymph nodes of the opposite lung, to the mediastinal lymph nodes and lymph nodes in other parts of the body. So long as the disease remains restricted to the lymph nodes and true secondary pulmonary invasion has not taken place, the disease is to be classified as childhood type tuberculosis.

The phenomenon known as allergic reaction plays a large and definite part in the pathology and symptomatology of the disease. It is altogether likely that fever, tachycardia, fatigue, and loss of appetite are due to this allergic reaction. This seems to be proved by the fact that the injection of dead tubercle bacilli, or their protein derivatives will produce exactly the same symptoms of toxemia.

Since allergy requires about ten to twenty days for its development, there is no very accurate means of differential diagnosis of the tuberculous lesion during the first few days of its existence. After two or three weeks, the tuberculin test usually becomes positive and may be used as positive evidence of tuberculous infection. The positive test gives us the very valuable information that tuberculous infection is, or has been present in the body. It does not differentiate the childhood type from the adult type of infection, nor is it an indicator of activity and progress of the disease.

Allergy lasts for a long time, but not necessarily for a lifetime, as is indicated by the fact that the incidence of positive tuberculin tests is far less than the incidence of autopsy-proven tuberculous infection. It is our custom to use the tuberculin test purely as a diagnostic measure and interpret it as meaning nothing more than that the individual has been infected with tuberculosis. False positives are practically unknown, so it is pretty safe to say that the individual with a positive Mantoux test has been infected.

Since the positive Mantoux gives no information about the extent and progress of the disease, it is necessary to use other means to determine this point. For this purpose, the Roentgen-ray plate and fluoroscopic examination are of great value. Roentgen ray plates seldom disclose the Ghon tubercle, for that is usually healed or resolved by the time the patient comes for observation. Frequently, however, the Ghon tubercle has undergone calcification and left a calcified node as evidence of its having existed. This may be termed the Ghon nodule. Thickening along the peribronchial tissues leading from the Ghon nodule toward the hilum is frequently seen and thickening and raggedness of the hilum are common. Retrograde peribronchial thickening in other directions is frequently seen and, if this shows definitely hazy margins, it is usually safe to say that pulmonary invasion is taking place. Then we have the adult type of the disease. This is the manner in which the insidious peribronchial spread occurs, the transition from childhood to adult type of the disease.

Occasionally, it is believed, a hilum lymph node ruptures into the bronchus and floods the bronchial tree with tubercle bacilli, in

which case acute tuberculous pneumonia may occur. This explains the influenzal or pneumonic type of tuberculosis and accounts for the sudden onset of adult type disease in a patient who was apparently in perfect health before. We also have the hematogenous spread, giving miliary lesions more or less throughout the body, resulting from the discharge of tubercle bacilli into the blood stream. Thus, we have three types of transition from childhood to adult type of disease —the insidious or peribronchial spread and the sudden pneumonic and miliary spreads. The latter types of extension cannot be accurately forecast, but the former, or insidious type of spread can be seen in its early stages and measures can be taken to prevent further ravages. It is this point that justifies our procedure in tuberculin testing children and in keeping them under continued observation. Every child who has a positive tuberculin test should have periodic x-ray examinations, for by so doing, the onset of adult clinical tuberculosis can frequently be foretold.

Exogenous reinfection is also a possibility that must be considered. While its part in the development of adult type tuberculosis is not altogether clear, it must be regarded as a danger, and every child should be protected against infection or reinfection as far as possible. Some authorities seem to be of the opinion that all, or nearly all, of the adult type tuberculosis is a sequel to exogenous reinfection. I am of the opinion, however, that most of the adult type tuberculosis arises directly from the childhood type.

Physical findings in these cases are usually negative, with the exception of fever and tachycardia. A mild degree of fever does not demand that the child be put to bed for absolute bed rest, but that he should be put on restricted activities and given plenty of good nourishing food and natural, not synthetic vitamines A, B, and D. Even with the use of such a program some patients are certain to breakdown with the adult type of the disease, but the breakdowns will be fewer in number and will be diagnosed early and present much less serious prognostic problems.

Since approximately 85 per cent of adults show scars of tuberculous lesions of the childhood type, and since the incidence of positive tuberculin tests in adult life is about 30 to 40 per cent, we may conclude that the major portion of the infected individuals have healed the tuberculosis and lost their allergy. Since about 7 per cent of all deaths are due to tuberculosis and 85 per cent of the community are infected, we may conclude that the ultimate death rate from childhood type tuberculosis is about one in twelve. We may expect a lowering of this rate with the measures that I have outlined for diagnosis and observation of infected cases.

Altogether, the picture presented by tuberculosis is much more hopeful than it was a few years ago, and increasing knowledge of its manifestations and increasing use of our measures against it may be expected to still further reduce the ravages of this disease.

221 Medical Plaza Building.

1939 PNEUMOTHORAX DIRECTORY

The American College of Chest Physicians announces that it will release within the next few days, the third revised edition of its Pneumothorax Directory. The 1939 directory will list 509 Fellows of the American College of Chest Physicians in forty four states of the United States, the District of Columbia, Hawaii, the Philippine Islands, Puerto Rico, and Mexico. Unless otherwise designated in the directory, all of the Fellows whose names are listed are qualified and equipped to administer artificial pneumothorax. Special designations have been accorded to those Fellows of the College who are qualified as thoracic surgeons.

Because of the wide use of collapse treatment in respiratory diseases and the travel of patients who are in need of refills, the American College of Chest Physicians is supplying a need by publishing this handy reference book.

Every physician should own a copy or have access to a copy of the Pneumothorax Directory of the American College of Chest Physicians.

Bronchoscopy as an Aid to General Practitioner*

H. D. HARLOWE, M.D.
Virginia, Minnesota

IN the progress of medicine during the past twenty years, many new subjects have been added. In laryngoscopy, bronchoscopy has matured until in many hospitals it has become a separate department. At first used only for the recovery of foreign bodies aspirated or swallowed, it has now become a standard procedure in diagnosis and treatment.

I feel it might be worth while to the general practitioner to discuss briefly bronchoscopy and esophagoscopy, when indicated, when contra-indicated, its range of usefulness in diagnosis and treatment of disease.

Bronchoscopy is indicated for the following:

1. *Removal of foreign bodies.* Here many cases inaccurately diagnosed as asthma, tuberculosis, and malignancy have proved to be aspirated foreign bodies which have become lodged in the lung. Many of these have remained here for months and even years. Objects such as peanuts, seeds, and those capable of producing arachidic acid are usually rapid trouble makers and should be removed as soon as possible. Contrary to usual belief, in Jackson's Clinic only 2 per cent of their work is the removal of foreign bodies.

The indications for bronchoscopy for a foreign body as outlined by Jackson are as follows:

a. The appearance in the roentgenogram of a foreign body or any suspicious shadow.
b. Cases in which a clear history is given of the patient's having choked on a foreign body and the latter never found.
c. Cases in which there are signs of stenosis of the trachea or the bronchus.
d. Any case suspected of being bronchiectatic, to exclude the possibility of a foreign body.
e. In the absence of any history of a foreign body, the patient giving symptoms of pulmonary tuberculosis without finding of bacilli in the sputum, and especially if the physical signs are at the right base; above all, if there are signs of pleural effusion.
f. In case of doubt.
g. If the presence of a foreign body has once been definitely established, there is only one treatment—bronchoscopy.

Foreign bodies of dental origin in the lungs are most important. They include foreign bodies of the following types: teeth, dental burrs, gold crowns, dental plates, fillings, parts of dental instruments, portions of plaster-of-paris casts, hard rubber from dental mouth gags, discs for dental cement and nerve canal reamers. The favorite site of lodgment of foreign bodies is in the right main stem bronchus, the ratio being approximately two to one. The majority of these accidents occur while the patient is under an anaesthetic. Swallowing of dental protheses accidentally during eating is very common. Foreign bodies of dental origin produce symptoms similar to those arising from other inorganic objects. The train of symptoms to be expected are cough, pain in the chest, hemoptysis and dyspnea. These may be the only symptoms produced for years while, on the other hand, a lung abscess may develop within a very short time.

2. *Post-operative atelectasis.* Here, following operation the bronchi become filled with a thick gelatinous secretion and at first contain no pus. Later this becomes purulent and a drowned lung results, finally resolving in a lung with purulent bronchitis abscess or bronchiectasis. When this occurs, aspiration should be done immediately; it usually gives prompt relief, restores the lost aeration and recovery is uneventful.

3. *Bronchiectasis.* Bronchoscopy is used here not as a curative measure, but for the relief it gives. It is not uncommon to have a patient come in and request bronchial suction because of the comfort it affords.

4. *Acute or chronic pulmonary abscess*

* Reprinted from *The Journal Lancet*, Vol. LVIII, No. 7, July 1938.

communicating with the bronchus. Removal of the pus, crusts, and granulation tissue favors drainage. Combined with postural drainage and general health measures, bronchoscopy gives excellent results. Usually, however, this has to be repeated several times as one aspiration is not sufficient. Clerf advocates and obtains cures in 70 per cent of his cases of lung abscesses by bi-weekly aspirations plus complete bed rest and a high caloric diet. This is combined with postural drainage four times a day and the use of neoarsphenamine if spirochetes are found in the aspirated pus. He obtains these results where treatment is instituted within three months of onset.

5. *Bronchial obstruction.* This includes the non-opaque foreign body, a benign growth in the lumen, or enlarged lymph nodes or traction due to fibrous tissue.

6. *Case of unexplained cough persisting over a period of a month.* Dixon reports a case of a patient whose cough persisted despite treatment for three months. On auscultation the lung revealed the presence of persistent rales. On bronchoscopy the bronchi were found to be red and velvety. Suction was used and the red areas were touched with silver nitrate. Following this, the patient became much more comfortable, the cough soon disappeared and the lung rapidly returned to normal.

7. *Unexplained dyspnea.* Bronchoscopy is sometimes used here as an aid to diagnosis. However, it is not indicated in the dyspnea of angio-neurotic edema of the larynx; instrumentation aggravates this condition.

8. Bronchoscopy is useful in the removal of diphtheritic membrane from the trachea and is often lifesaving.

9. Lastly, bronchoscopic removal of tissue for biopsy gives much information and often helps in the prognosis and treatment.

Bronchoscopy is contra-indicated in serious organic disease such as: aneurism, hypertension, advanced cardiac disease, acute alcoholism, acute respiratory infections and severe hemoptysis. Artificial pneumothorax and phrenicectomy are not exactly contra-indications. The diabetic should be under insulin treatment. The syphilitic should receive anti-luetic therapy before any work is done. Jackson, however, recognizes no absolute contra-indications to bronchoscopy.

Esophagoscopy is indicated in:

1. *The removal of foreign bodies.* The contra-indications in such cases are usually practically nil. One point I wish to stress is that these cases are usually not emergency removals, but can wait until the stomach has been emptied. This makes for greater ease in working as the operator is not troubled with emesis. Food should be withheld for at least five hours before the esophagoscopy.

2. *Confirming the diagnosis of malignancy.* Esophagoscopy gives us biopsy material. This is usually a safe, quick procedure and is attended with little discomfort. I was rather surprised, in going over the records in one of our larger hospitals, to find that most of the obstructions in the esophagus were diagnosed cancer by the x-ray alone, and not confirmed by biopsy. However, negative results do not mean freedom from cancer. In those cases where biopsy shows malignancy, radium may be implanted directly into the growth through the esophagoscope.

3. *Preventriculosis or cardiospasm.*

4. *The swallowing of any caustic.* Here it is best to begin the dilatation as soon as the wall of the esophagus will withstand instrumentation. This, of course, will depend on the severity of the burn, and will probably be from two to three weeks. If the patient is allowed to go until food no longer passes through, then the scar tissue has become so firmly organized that dilatation is long and difficult. This is often only possible by retrograde dilatation.

Esophagoscopy is contra-indicated in much the same types of cases as in bronchoscopy: in the extremely ill, in cases of aneurism, hypertension, advanced organic disease, extensive esophageal varicosities; acute necrotic or corrosive esophagitis until sloughing has ceased and healing has strengthened the weak places. In the dehydrated patients, esophagoscopy should be deferred until water is supplied; in acidosis, until this is corrected.

As to the cause of our failures—well, the only fellow who has never failed is the one who has never tried. Bronchoscopy differs from all other nose and throat operations in that it is the only one where team work is essential. Kipling might have been speaking of bronchoscopy when he wrote:

It ain't the individual
Or the army as a whole,
But it's the everlastin' team work
Of every bloomin' soul.

In the general hospital, an ever-changing group of nurses and internes makes team work almost impossible. Most often the assistants have never been present at a similar operation and their part has to be explained to them pre-operatively. After the operation, their breaks in technique are explained to them so that it will not recur; but at the next bronchoscopy a new group is usually present. Most of these cases are charity cases and instruments are expensive. Usually one never gets the money he invests in these instruments returned, so that in most general hospitals, no instruments are provided. However, as the members of the staff and the general practitioners become more alert to this work and demand it, I feel sure this will be corrected.

We sometimes fail to recover foreign bodies because of the infrequent number of cases and the difficulty in working through a tube the size of a lead pencil, two feet long, the lumen of which is half filled with a grasping forceps.

Again we fail to recover biopsy material in suspected cancer cases, because on examination we find the lumen is compressed but smooth and there is no material to remove. Cracovaner in a report of 49 esophagoscopies at the Lennox Hill Hospital, New York City, found 41 cases yielded carcinoma on the first operation. However, 8, or 20 per cent, had to be re-scoped on the average of four times and of these 8, five later yielded carcinomatous material after repeated esophagoscopies.

Conclusions

1. It can be said with certainty, "If a foreign body is aspirated into the bronchi and allowed to remain there, abscess formation will likely follow in the majority of cases."

2. In every operation about the mouth and when giving patients an anaesthetic, care should be exercised to prevent aspiration infection.

3. Symptoms in most cases following the aspiration of foreign bodies are immediate, namely, cough, pain in the chest and hemoptysis. Later symptoms may simulate tuberculosis. Many cases of foreign bodies in the lungs are often previously diagnosed as tuberculosis. Tuberculosis, may, however, coexist with lung abscess.

4. Bronchoscopy is indicated in any case as a diagnostic measure if the history and x-rays are not conclusive.

5. When the presence of a foreign body has been definitely established, there is only one treatment—bronchoscopy.

6. Death is due in most cases to lung abscess, bronchiectasis, and gangrene.

7. Bronchoscopy offers a most helpful aid in diagnosis and treatment in the field of medicine.

8. This writer feels that the general practitioner may, in many cases, gain much by consulting with the endoscophist in regard to problems of diagnosis and treatment.

GOVERNOR OF COLLEGE FOR KANSAS REPORTS

Illustrations of the work accomplished in the past by the Tuberculosis Committee are as follows: Postgraduate programs are presented each year in various places throughout the state; the Committee has succeeded in joining together all agencies interested in tuberculosis in the state, and all now work in perfect harmony; the Committee has encouraged clinic and diagnosis facilities to be operated by the county medical societies and great progress is being made in this direction; arrangements have been made for free instruction in pneumothorax to be given at our state sanatorium, and as a result Kansas is substantially expanding its pneumothorax facilities; a tuberculosis section is being maintained each month in our Journal; the arrangements have just been completed for 240 additional beds at the Norton sanatorium; the Board of Health is being assisted materially in expanding its tuberculin testing programs; and many other examples of efficiency can be cited.

F. L. Loveland, M.D., Topeka, Kansas.

Organization News

Dr. Frank Walton Burge, Philadelphia, Pennsylvania, Editor of Diseases of the Chest and Chairman of the Board of Regents of the American College of Chest Physicians; had a paper published in the Journal of the American Medical Association, (November 12, 1938) entitled, *The Treatment of Tuberculosis Under the Guidance of Organized Medicine: The Pennsylvania Plan for Tuberculosis.*" The paper was delivered at the annual meeting of the American Medical Association, in the General Scientific Session, at San Francisco, California, June 14, 1938. The American College of Chest Physicians is sponsoring "The Pennsylvania Plan for Tuberculosis" and results of the Committee for the Advancement of this Plan in Organized Medicine are published below.

Georgia Establishes Tuberculosis Committee

Dr. Champ H. Holmes, Atlanta, Georgia, President of the American College of Chest Physicians; was appointed Chairman of the Tuberculosis Committee of the Georgia Medical Society. The other members of the Committee are: Dr. C. D. Welchel, Gainesville; H. C. Schenck, Atlanta; W. C. Cook, Columbus; H. C. Atkinson, Macon; R. C. McGahee, Augusta; R. V. Martin, Savannah; E. F. Wahl, Thomasville; J. A. Simpson, Athens; and W. H. Lewis, Rome. In compliance with the "Pennsylvania Plan" of the American College of Chest Physicians, it is the plan of the above committee to establish Tuberculosis Committees in each of the County Medical Societies in the State of Georgia.

Dr. Ralph C. Matson, Portland, Oregon, Chairman of the Committee for the Advancement of Tuberculosis Organization in Medicine of the American College of Chest Physicians; announces that the following states have reported the personnel of their State Medical Society Tuberculosis Committees:

Dr. Charles S. Kibler, Governor of Arizona reporting.

ARIZONA:

Dr. E. W. Phillips, Phoenix, *Chairman;*
Dr. S. H. Watson, Tucson;
Dr. Z. B. Noon, Nogales;

ARIZONA (Continued):

Dr. D. W. Melick, Williams;
Dr. George Thorngate, Phoenix;
Dr. Kent Thayer, Phoenix;
Dr. R. D. Kennedy, Globe.

Dr. Charles V. Kaufman, Governor of Colorado reporting.

COLORADO:

Dr. John B. Crouch, Colorado Springs, *Chairman;*
Dr. Arnold Minnig, Denver;
Dr. Leonard C. Crosby, Denver.

Dr. L. D. Phillips, Governor for Delaware reporting:

DELAWARE:

Dr. M. I. Samuel, Wilmington, *Chairman;*
Dr. Roger Murray, Wilmington;
Dr. D. T. Johnson, Claymont;
Dr. W. M. Johnson, Newark;
Dr. L. D. Phillips, Marshallton;
Dr. W. C. Deakyne, Smyrna;
Dr. Stanley Worden, Dover;
Dr. A. C. Smoot, Georgetown.

Dr. M. Jay Flipse, Governor for Florida reporting:

FLORIDA:

Dr. Jay Flipse, Miami, *Chairman;*
Dr. Wm. C. Blake, Tampa;
Dr. J. Maxey Dell, Jr., Gainesville;
Dr. L. Snyder Lafitte, Jacksonville;
Dr. Duncan T. McEwan, Orlando;
Dr. John C. McSween, Pensacola.

Dr. F. L. Loveland, Governor for Kansas reporting:

KANSAS:

Dr. H. N. Tihen, Wichita, *Chairman;*
Dr. E. K. Musson, Topeka;
Dr. J. G. Hughbanks, Independence;
Dr. C. H. Lerrigo, Topeka;
Dr. N. C. Nash, Wichita;
Dr. C. F. Taylor, Norton;
Dr. R. L. Gench, Fort Scott;
Dr. F. S. Hawes, Russell.

Dr. Robert M. Shepard, Governor for Oklahoma reporting:

OKLAHOMA:

Dr. Carl Puckett, Oklahoma City, *Chairman;*
Dr. W. C. Tisdale, Clinton;
Dr. F. P. Baker, Talihina.

Dr. W. S. Rude, Governor for Tennessee reporting:

TENNESSEE:

Dr. W. S. Rude, Ridgetop, *Chairman;*
Dr. O. N. Bryan, Nashville;
Dr. C. M. Oberschmidt, Memphis;
Dr. J. L. Hamilton, Chattanooga.

The Tuberculosis Committees of Pennsylvania and Texas have been listed in the previous issues of *Diseases of the Chest*. Other Tuberculosis Committees appointed by State and County Medical Societies will be announced in the future issues of *Diseases of the Chest*.

Dr. Vest Honored

Dr. Walter E. Vest, Huntington, West Virginia, Governor of the American College of Chest Physicians for West Virginia; was elected as the President of the Southern Medical Association. Dr. Vest is also a member of the Committee of seven physicians chosen by the House of Delegates to represent the American Medical Association in its discussions with the National Health Conference.

The following Physicians have been admitted as Fellows of the American College of Chest Physicians:

Dr. Octavio Bandala, Mexico City, Mexico;
Dr. Henry L. Dorfman, New York, N. Y.;
Dr. Herman A. Gilda, Chambersburg, Pa.;
Dr. E. W. Grove, Gainesville, Georgia;
Dr. Charles L. Ianne, San Jose, California;
Dr. Victor M. Leffingwell, Sharon, Penn.;
Dr. Felix P. Miller, El Paso, Texas;
Dr. Francis P. O'Hara, San Diego, California;
Dr. Thomas F. O'Leary, Mt. Alto, Penn.;
Dr. John Roberts Phillips, Houston, Texas;
Dr. Chas. W. Rieber, Forest Hill, New York;
Dr. Rufus A. Schneiders, San Diego, Calif.;
Dr. John C. Sharpe, Salinas, California;
Dr. Samuel J. Sills, Los Angeles, California;
Dr. Orville F. Swindell, Boise, Idaho;
Dr. Lawrence O. Toomey, Bowling Green, Ky.;
Dr. Frank R. Wheelock, Scranton, Penn.;
Dr. Harry P. Thomas, San Antonio, Texas.

Past, Present, and Future

The Southwestern Medical Association has honored the American College of Chest Physicians by the election of three of its Fellows in succession to the position of President of the Society. Dr. LeRoy S. Peters of Albuquerque, New Mexico; Governor of the College for the State of New Mexico is the retiring president; Dr. Howell S. Randolph, Phoenix, Arizona, a Fellow of the College is the incoming President; and Dr. Orville E. Egbert, El Paso, Texas, Governor of the College for the State of Texas, is the President Elect.

SOCIETY NEWS

Dr. Jay Arthur Myers, Minneapolis, Minnesota, Regent of the American College of Chest Physicians; will address the Health Forum sponsored by the Jackson County Health Forum at Kansas City, Missouri, on December 21st. The title of Dr. Myer's address will be *Tuberculosis.*

Dr. Anthony V. Cadden, Hopemont, West Virginia; a Fellow of the American College of Chest Physicians; addressed the meeting of the West Virginia Tuberculosis and Health Association. The title of his paper was, *Results of Modern Methods of Sanatorium Treatment.*

The so-called "Humane Pound" Law, which opposed the vivi-section of animals for experimental and scientific purposes was defeated in California by a two to one vote. The American College of Chest Physicians through its Committee on Resolutions was one of the many medical societies to go on record as being opposed to the passage of the law.

Dr. Robert M. Shepard, Tulsa, Oklahoma, Governor of the American College of Chest Physicians for the State of Oklahoma; delivered a paper before the meeting of the Tulsa County Medical Society. The title of his paper was, *Early Tuberculosis and its Diagnosis.*

Dr. Sidney A. Slater, Worthington, Minnesota, Governor of the American College of Chest Physicians; presided at the thirty-second annual meeting of the Minnesota Public Health Association. Dr. Slater is the President of the Association.

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F. M. POTTENGER, JR., M.D.---Assistant Physician

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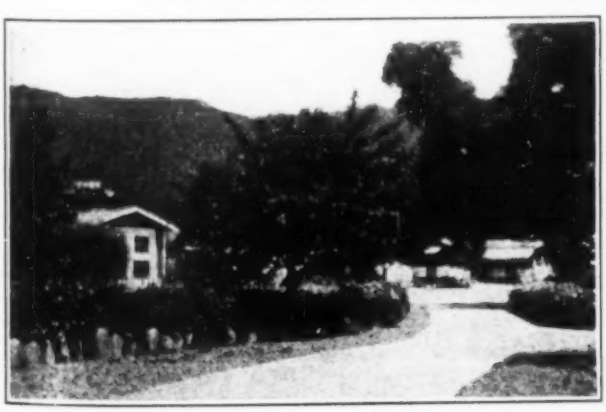

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Dr. Joseph Rosenblatt, Duarte, California, a Fellow of the American College of Chest Physicians; addressed the opening meeting of the year of the Trudeau Society of Los Angeles on October 25th at Los Angeles, California.

Dr. M. A. Cunningham, a Fellow of the American College of Chest Physicians announces his removal from Deming, New Mexico to El Paso, Texas; where he will be engaged in private practice, Dr. Cunningham was formerly the medical director of the Holy Cross Sanatorium at Deming, New Mexico.

Dr. Robinson Bosworth, East St. Louis, Illinois, President of the Illinois Tuberculosis Association and a Regent of the American College of Chest Physicians; was on the program of the Illinois Public Health Conference held at Springfield, Illinois on November 30th. Dr. Robinson spoke on *The Tuberculosis Situation in Illinois.*

Dr. Frank Walton Burge, Philadelphia, Pennsylvania, was the guest speaker on the program of the South Branch of the Philadelphia County Medical Society, held at Philadelphia on October 27th. Dr. Burge spoke on *Organized Medicine.*

Dr. Carl Howson, Los Angeles, California, a Fellow of the American College of Chest Physicians; has been appointed as the Medical Director of the La Vina Sanatorium at La Vina, California. Dr. Howson will continue with his private practice at Los Angeles, as usual.

Dr. J. M. Appel, Cleveland, Ohio, a Fellow of the American College of Chest Physicians; has resigned the position as Medical Director of the Mount Royal Sanatorium, at North Royalton, Ohio, to go into private practice. His place will be filled by Dr. Stanley Greene, formerly of Sunny Acres Sanatorium, Warrensville, Ohio.

Dr. H. C. Stewart, Memphis, Tennessee, formerly with the State Board of Health of Tennessee, has been appointed Co-ordinater of tuberculosis for Cleveland and Cuyahoga County. Dr. Steward's duties will be, with the advice of the respective commissioners of health in the county, to formulate educational policies relative to tuberculosis, to cooperate with the commissioners of the county to secure more uniform methods of finding and following up cases of tuberculosis, and to act as liason officer between health officers and the Board of County Commissioners.

ERRATUM:

On the cover page of the November issue of Diseases of the Chest, Dr. Redford A. Wilson's name was inadvertantly omitted as the co-author of the paper entitled, *An Observation on Pulmonary Tuberculosis when Complicated by Laryngeal Tuberculosis.*

Sometimes in pneumothorax treatment adhesions between the visceral and parietal pleurae must be severed in order to close the cavity.

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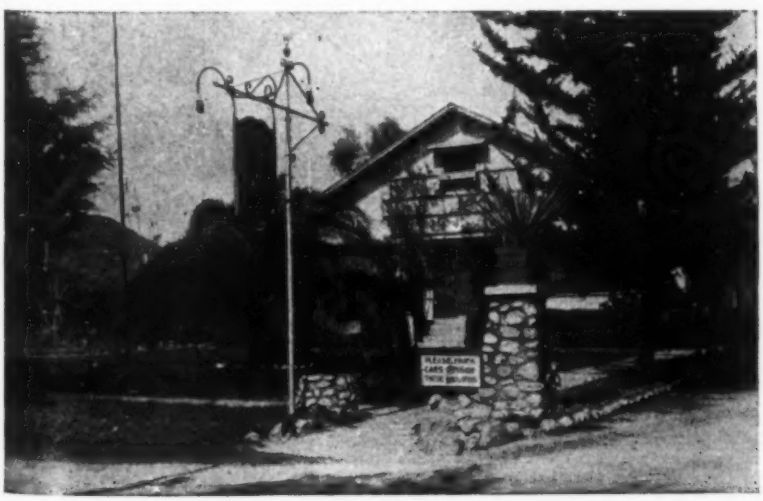

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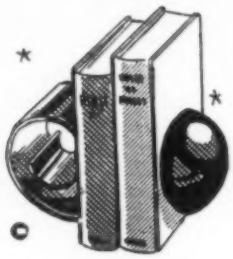

Book Review

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS: By George W. Norris, A. B., M.D. Formerly Professor of Clinical Medicine in the University of Pennsylvania; Chief of Medical Service "A", Pennsylvania Hospital; Erstwhile Colonel, M. C. U. S. Army; and H. R. M. Landis, A. M., M. D., Sc. D., Formerly Professor of Clinical Medicine in the University of Pennsylvania. Sixth Edition, Revised. 1019 pages with 478 illustrations. Philadelphia and London: W. B. Saunders Company, 1938. Cloth, $10.00 net.

"Norris and Landis" has long been an established text-book on this subject. The text requires no introduction at this time, as would an absolutely new treatise on the subject of diseases of the chest. This reviewer, however, is struck by its compactness, clarity, and scope each time reference is made to the text.

Much lamentation is made by many of the older clinicians relative to the apparent trend of medicine toward over-reliance on laboratory methods for diagnosis. With such reliance the art and science of physical examination and diagnosis has been too frequently lost to recent graduates. With this in mind the authors first published this book in an effort to set forth concisely and graphically the basic principles of *physical* examination of the chest.

In this, the 6th edition, the authors have deleted many unnecessary chapters found in the previous editions and have completely rewritten the chapters on electrocardiography, lung abscess, bronchiectasis, coronary disease, etc. The new chapter dealing with x-ray in diagnosis of the heart and great vessels is excellent. The chapter on electrocardiography and the cardiac arrhythmias is concise but very complete, and, as is usual in the book, is illustrated. Electrocardiograms are present in the illustrations, covering practically every possible variation shown in cardiac pathology.

One of the outstanding features of this volume is the excellent illustrative material. The graphic illustrations of physical signs in the chest are splendid and of great value in the teaching of physical examination to students.

The anatomical sections found throughout the book are of inestimable value to students and also to the practitioner who has not ready access to an anatomical or pathological museum. These illustrated anatomical sections alone are worth the price of the book.

The text deals exclusively with the diagnosis of diseases of the chest, including diseases of the lungs and pleura and diseases of the heart and all of its manifestations. Each disease is taken up in a logical order and disposed of in the shortest possible space so that the reader can easily find the facts regarding any certain problem without waste of time.

This is a volume that should be in the hands of every medical student, and in the library of not only the specialist in diseases of the chest and heart but of the general practitioner, whether he is in the city or in rural practice. Frequent reference to Norris & Landis on diagnostic problems will keep the physician alert and well-equipped in physical diagnosis.

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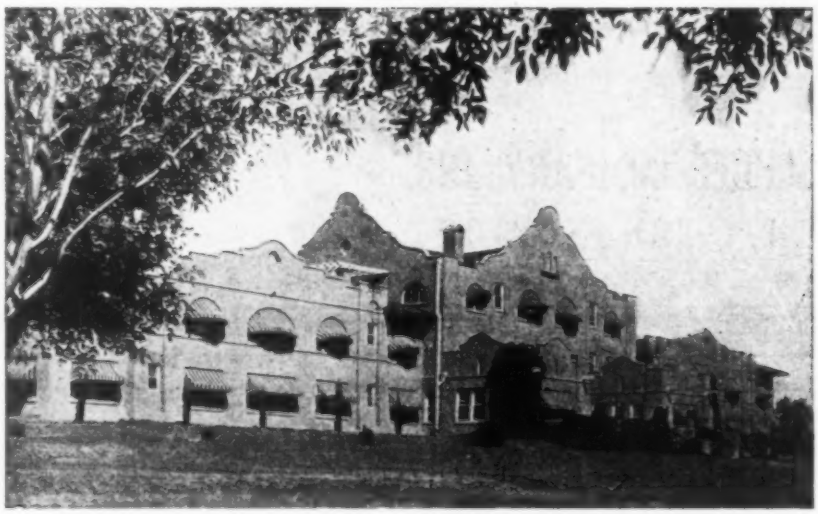

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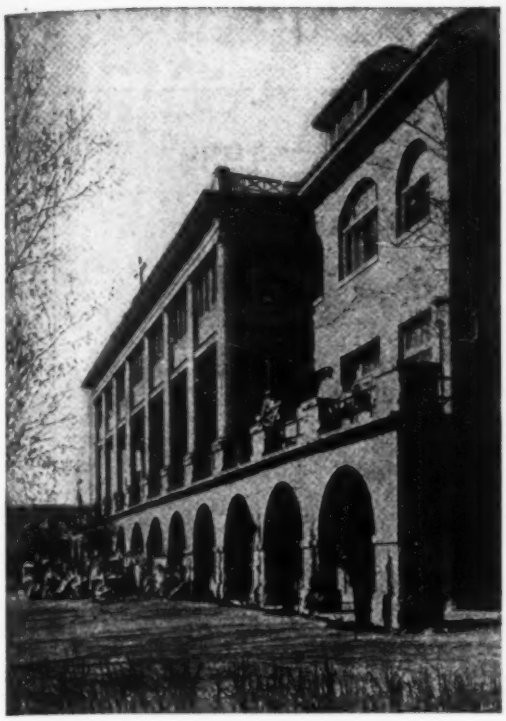

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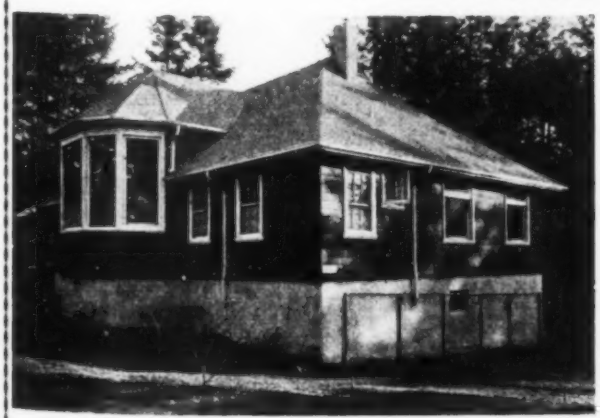

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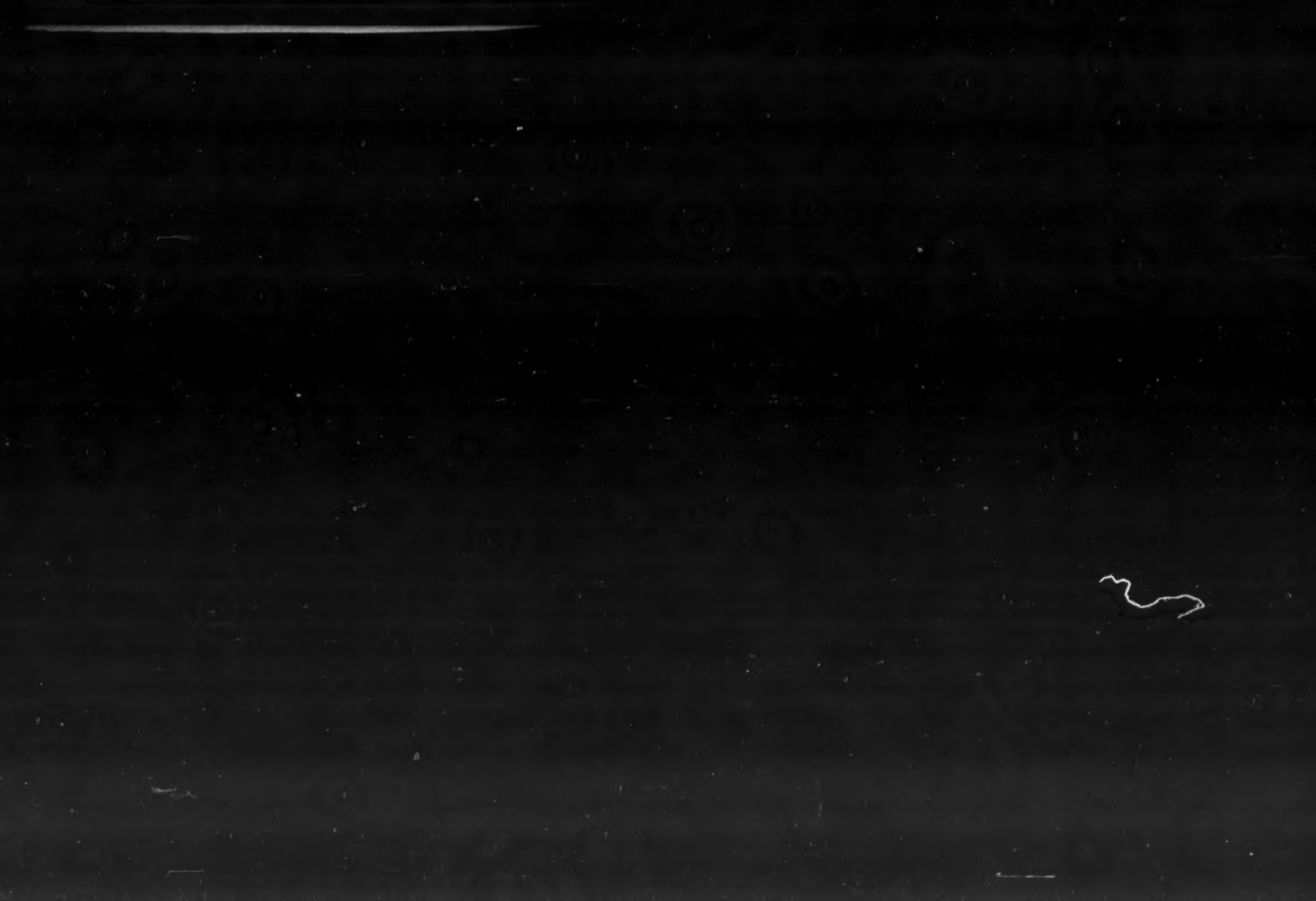

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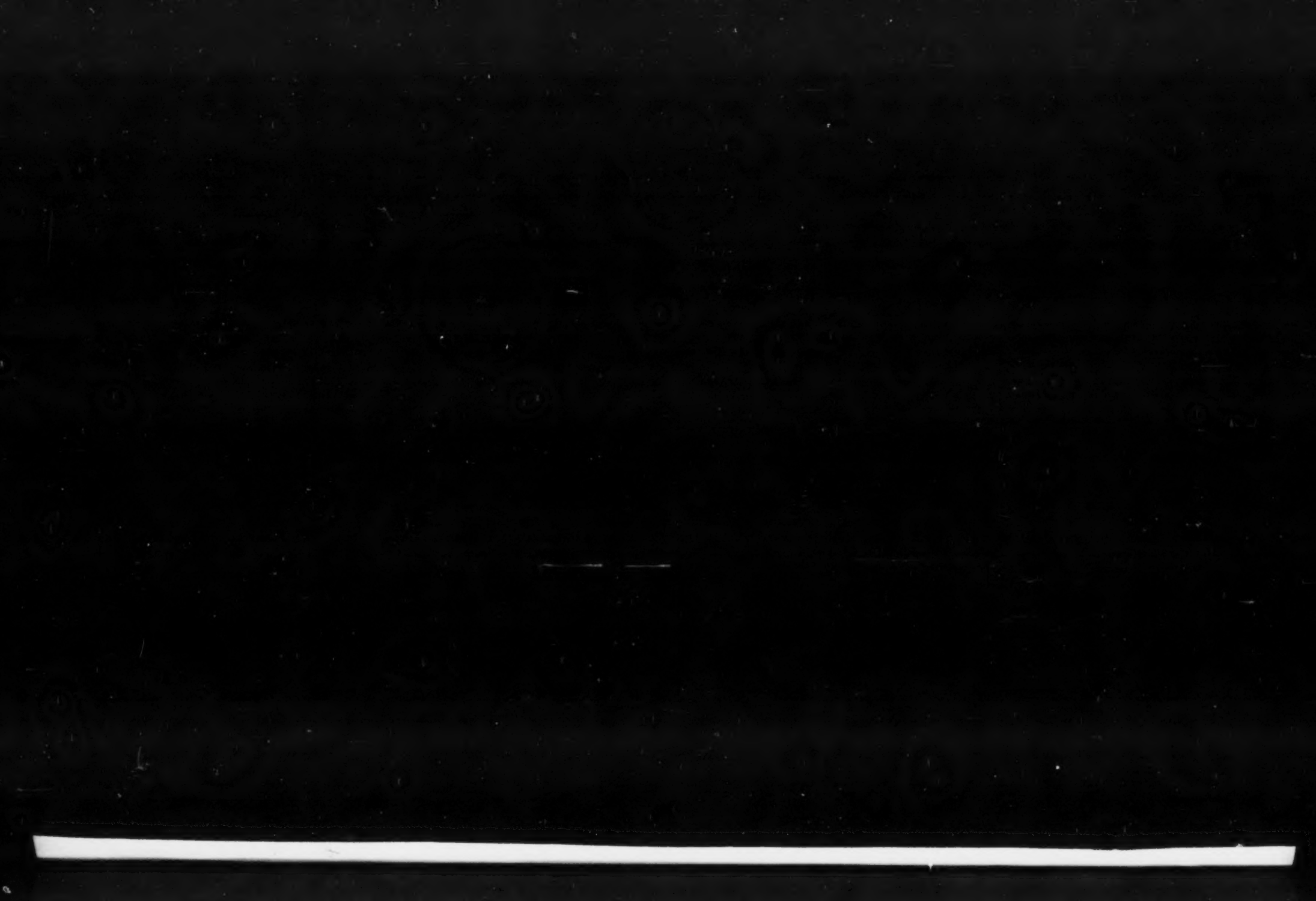
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